

New Tasks

SOV-25-58-A-7/61

favorable process and ensure the maximum of economy, that is the construction of the so-called self-adjusting systems. A distinctive feature of the future operational system will be the accomplishment of a wide scope of tasks by one system. Such a system will not only operate an assembly or workshop, but an entire plant and later a group of plants. These are the problems facing the institute. Undoubtedly a wide transition to the so-called non-contact systems will take place. Individual elements, reprocessing the information received from control devices, will be gradually simplified and assume a very small size. On the other hand, combinations of these simple individual elements in very ramified compositions will enable operational systems carrying out a great variety of functions to be established. There is 1-photo.

ASSOCIATION: Institut avtomatiki i telemekhaniki AN SSSR
(Institute of Automation and Telemechanics AS USSR)

1. Industrial plants--Control systems 2. Industrial plants--Equipment

Card 2/2

28(1)
AUTHOR:

SOV/30-59-6-12/40
Trapeznikov, V. A., Corresponding Member, Academy of Sciences,
USSR

TITLE:

Scientific Bases of the Automation of Production Processes
(Nauchnyye osnovy avtomatizatsii proizvodstvennykh protsessov).
Report by Corresponding Member, Academy of Sciences, USSR,
V. A. Trapeznikov (Doklad chlena-korrespondenta AN SSSR
V. A. Trapeznikova)

PERIODICAL:

Vestnik Akademii nauk SSSR, 1959, Nr 6, pp 83-89 (USSR)

ABSTRACT:

In the development of automatic systems the tasks of control and thus also of theory became more complicated and called for the use of special computation devices. The theory of relay devices is of great importance for the development of automatic control systems. These comprehensive problems are solved within the Academies of Sciences of the USSR and the Republics of the Union. The author of this article further deals with the work performed by the AS of the Republics of the Union. Theoretical problems and work on control devices are mainly dealt with by the AS UkrSSR as well as by the Institut elektroniki, avtomatiki i telemekhaniki Gruzinskoy SSR (Institute of Elec-

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SOV/30-59-6-12/40

Scientific Bases of the Automation of Production Processes. Report by Corresponding Member, Academy of Sciences, USSR, V. A. Trapeznikov

tronics, Automation, and Telemechanics of the Gruzinskaya SSR). In a number of institutes of the AS Azerbaydzhanskaya, Uzbekskaya, and Ukrainskaya SSR work on automatized electric drive is performed. In all Republics of the Union work for the automation of branches of national economy is carried out which are specific of the individual Republics. The author underlines that no Academy deals with the problems of automatic detection of defects which fact delays the development of automation of metallurgical processes. In this connection he said that this is due to the shortage of material bases and experts. In the course of the Seven Year Plan buildings for 16 institutes dealing with automation are to be established. Important work in the field of chemistry is performed by the Kazan' branch. The scientific conferences on problems as well as scientific seminars are regarded as a useful coordination of work. In conclusion, the author says that the following coordination institutions are active in the field of automation: Nauchnyy sovet po avtomatizatsii v sisteme Akademii nauk SSSR (Scientific Council for Automation in the Framework of the AS USSR);

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Scientific Bases of the Automation of Production Processes. Report by Corresponding Member, Academy of Sciences, USSR, V. A. Trapeznikov

Komitet po avtomatizatsii i mashinostroyeniyu pri Sovete Ministrov SSSR (Committee for Automation and Machine Building at the Council of Ministers of the USSR); Nauchno-tehnicheskiy sovet po kompleksnoy avtomatizatsii i mekhanizatsii pri Gosplane SSSR (Scientific Technical Council for Comprehensive Automation and Mechanization at the State Planning Committee of the Council of Ministers of the USSR); Nauchno-tehnicheskiy komitet pri Sovete Ministrov SSSR (Scientific Technical Committee at the Council of Ministers of the USSR), and some others. The author regards it as necessary to coordinate the work of these numerous institutions and to define their tasks.

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Card 3/3

8 (0)

AUTHORS: Kostenko, M. P., Kulebakin, V. S., SOV/105-59-11-27/32
Trapeznikov, V. A., Venikov, V. A., Goloban, A. T., Morozov, D. P.,
Svromyshtnikov, I. A., Drozdov, N. G., Petrov, I. I., Basharin,
A. V., Sokolov, M. M., and others

TITLE: Professor M. G. Chilikin. On His 50th Birthday and His 25th Year of Scientific, Engineering, and Pedagogical Activity

PERIODICAL: Elektrichestvo, 1959, Nr 11, p 91 (USSR)

ABSTRACT: Professor Mikhail Grigor'yevich Chilikin is Director of the Moskovskiy Ordena Lenina energeticheskiy Institut (Moscow Order of Lenin Institute of Power Engineering) and a specialist in the field of electric drive. Professor M. G. Chilikin wrote his dissertation for his application as Candidate of Technical Sciences in 1938, in 1951 he was appointed professor and in 1954 he obtained the degree of a Doctor of Technical Sciences. Since 1951 he has taught at the Kafedra "Elektro-oborudovaniye promyshlennyykh predpriyatiy" (Chair for Electrical Equipment of Industrial Enterprises) of MEI. He held lectures on electric drives and dealt with the construction of electric drive systems. In 1952 he became head of the aforementioned institute. He issued ninety papers on teaching ✓

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Professor M. G. Chilikin. On His 50th Birthday and SOV/105-59-11-27/32
His 25th Year of Scientific, Engineering, and Pedagogical Activity

methods in universities, on scientific problems of electric drives and electrification. His books are well known among workers and university students. M. G. Chilikin is President of the Nauchno-tehnicheskiy komitet po avtomatizirovannomu elektroprivodu i primeneniyu elektricheskikh mashin (Scientific and Technical Committee for Automated Electric Drives and the Use of Electrical Machines), President of the sektsiya energovoорuzheniya Tekhsoveta Gosplana SSSR (Section for the Energy Equipment of the Technical Council of the Gosplan USSR), Member of the Editorial Council of the Gosenergoizdat (State Power Engineering Publishing House), Member of the Board of Editors of the periodical "Elektrichestvo". He was a member of the Plenum of a rayon Committee of the CPSU, and four times delegate in the Mossovet (Moscow Soviet). He received the Order of the Red Banner of Labor and other awards. There is 1 figure.

✓
Card 2/2

TRAPEZNIKOV, V.A., akademik

Automation and mankind. Nauka i zhizn' 27 no.10:2-7 O '60.
(MIRA 13:10)

1. Predsedatel' Natsional'nogo komiteta SSSR po avtomaticheskому
upravleniyu.
(Automatic control) (Social conditions)

TRAPEZNIKOV, V.A., akademik, glav. red.; AYZERMAN, M.A., doktor tekhn. nauk, red.; AGEYKIN, D.I., kand. tekhn. nauk, red.; ARTOBOLEVSKIY, I.I., akademik, red.; BATRACHENKO, L.P., inzh., red.; VORONOV, A.A., doktor tekhn. nauk, red.; GAVRILOV, M.A., doktor tekhn. nauk, red.; DIKUSHIN, V.I., akademik, red.; KARIBSKIY, V.V., kand. tekhn. nauk, red.; KOGAN, B.Ya., kand. tekhn. nauk, red.; KRASIVSKIY, S.P., red.; KULEBAKIN, V.S., akademik, red.; LERNER, A.Ya., doktor tekhn. nauk, red.; LETOV, A.M., kand. tekhn. nauk, red.; MEYEROV, M.V., doktor tekhn. nauk, red.; PETROV, B.N., akademik, red.; PUGACHEV, V.S., doktor tekhn. nauk, red.; SOTSKOV, B.S., red.; STEFANI, Ye.M., kand. tekhn. nauk, red.; KHRAMOV, A.V., kand. tekhn. nauk, red.; TSIPKIN, Ya.Z., doktor tekhn. nauk, prof., red.; CHELYUSTKIN, A.O., kand. tekhn. nauk, red.; CHILIKIN, M.G., doktor tekhn. nauk, red.; NAUMOV, B.N., kand. tekhn. nauk, red.; KASHINA, P.S., tekhn. red.

[Transactions of the International Federation of Automatic Control, 1st International Congress, Moscow, 1960] Trudy I Mezhdunarodnogo kongressa Mezhdunarodnoi federatsii po avtomaticheskому upravleniu. Moscow, Izd-vo Akad. nauk SSSR. Vol.2. [Theory of discrete systems, optimal systems, and adaptive automatic control systems] Teoriia diskretnykh, optimal'nykh i samonastraivaiushchikhsia sistem. 1961. 996 p.
(MIRA 14:9)

1. International Federation of Automatic Control, 1st International Congress, Moscow, 1960. 2. Chlen-korrespondent AN SSSR (for Sotskov)
(Automatic control)

S/569/61/001/000/001/019
D274/D304

AUTHOR:

Trapeznikov, V. A., Academician (USSR)

TITLE:

Report to the plenary session of the congress

SOURCE:

International Federation of Automatic Control. 1st
Congress, Moscow, 1960. Teoriya nepreryvnykh sistem.
Spetsial'nyye matematicheskiye problemy. Moscow,
Izd-no AN SSSR, 1961. Trudy, v. 1, 19-26

TEXT: This opening address is devoted to a general review of automation and its contribution to science and technology. It is asserted that the limitations on the speed of technological processes imposed by human control could be overcome; besides, unstable processes could be used (in addition to the stable ones). Complex automation, i.e., of all the branches of production, transportation, control, etc., is set as an object. This would lead to a higher living standard and greater human resources for research. Future medicine and biology would greatly profit as well. Interplanetary flight is being made possible to a large extent by automa-

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Report to the plenary...

tion. The study of the cosmos, in its turn, would bring much nearer the solution of basic problems of cosmology and of the origin of life. The processing and storing of the evergrowing amount of knowledge is made possible by automation. The research process itself could be carried on automatically from a certain stage. Self-organizing systems could, on the basis of empirical data, lead to explanatory new theories. Any machine, however, should be considered as the tool of human creation. Electronic computers have led to great advances in formal logic. Many difficulties have to be overcome in the theory of automatic control. Thus, the lack of a unifying theory is felt. For complex systems, the theoretical problems involved have not even been correctly formulated. Nevertheless, automatic-control theory is developing, and thereby the operation and limitations of machines are better understood. In the following, some of the specific problems confronting automation at present are reviewed: (1) Optimum control and synthesis of nearly-optimal controllers; (2) The design of self-adaptive and self-organizing systems; (3) The development of a theory for the design of machines. In this field, the theory of automatic control comes very close to cybernetics. In the

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USSR, apparatus for automatic synthesis of optimal systems has been developed, a machine for analyzing relay-devices has been designed, as well as a machine for synthesizing structures of relay-devices which gives a direct graphical picture of the structure, and the construction of a machine for the minimization of Boolean functions is in its final stages. Other topical problems are stability, performance and search, combined systems, etc. The development of control apparatus, its standardization and miniaturization are important; with respect to miniaturization, much progress by Western scientists is noted. Sometimes, automatic devices known from the early days find new (and unexpected) applications; such is the case with pneumatic devices, for which new uses were found in the USSR, e.g., in digital computers for automatic control. As a problem whose importance transcends the Congress, the unified development of the technological process, basic equipment and control system is mentioned.

Card 3/3

TRAPEZNIKOV, V.A.

The second international congress of the International
Association on Automatic Control. Izm. Tekh. no.9:61 S
'61. (MIRA 14:8)

1. Predsedatel' Natsional'nogo komiteta SSSR po avtomaticheskому
upravleniyu.
(Automatic control--Congresses)

TRAPEZNIKOV, V.A., akademik

Meeting of the Executive Council of the International Automatic Control Federation. Izv.vys.ucheb.zav.; prib. 4 no.5:141-142 '61. (ИИА 14:10)

1. Predsedatel' National'nogo Komiteta SSSR po avtomaticheskому upravleniyu.
(Automatic control--Congresses)

TRAPEZNIKOV, V.A., akademik

Convocation of the 2d Congress of the International Federation of
Automatic Control. Izv.vys.ucheb.zav.; elektromekh. 4 no.8:104-
105 '61. (MIRA 14:8)

1. Predsedatel' Natsional'nogo Komiteta SSSR po avtomaticheskому
upravleniyu.

(Automatic control--Congresses)

TRAPEZNIKOV, V.A., akademik

Second International Congress of the International Federation of
Automatic Control. Zav.lab. 27 no.10:1319 '61. (MIRA 14:10)

1. Predsedatel' Natsional'nogo Komiteta SSSR po avtomati-
cheskomu upravleniyu.
(Automatic control--Congresses)

TRAPEZNIKOV, V. akademik

Second congress of the executive council of the International Federation on Automatic Control. Rech. transp. 20 no.11:49 N '61. (MIRA 15:1)

1. Predsedatel' Natsional'nogo komiteta SSSR po avtomaticheskому управлению.

(Automatic control--Congresses)

TRAPEZNIKOV, V.A.

Second Congress of the International Automatic Control Federation.
Avt.prom. 27 no.11:46 N '61. (MIRA 14:10)

1. Natsional'nyy komitet Sovetskogo Soyuza po avtomaticheskому
upravleniyu.
(Automatic control—Congresses)

TRAPEZNIKOV, V.A. akademik

Enterprises of the future. Radio no.10:3-4 0 '61. (MIRA 14:10)

1. Direktor instituta avtomatiki i telemekhaniki AN SSSR.
(Technology)

TRAPEZNIKOV, V.A., akademik

Create today the "enterprises of tomorrow." Tekh.mol. 29
no.9:35 '61. (MIRA 14:10)

1. Prezident AN Ukrainskoy SSR.
(Ukraine---Remote control)

TRAPEZNIKOV, V.A.

From the Soviet National Committee on Automatic Control.
Prom.stroi. 39 no.8:3 of cover '61. (MIRA 14:9)
(Automatic control--Congresses)

TRAPEZNIKOV, V.A., akademik

Second Congress ~~of~~ the Executive Council of the International Federation on Automatic Control. Azerb.neft.khoz. 40 no.8:47 Ag '61. (MIRA 15:2)

1. Predsedatel' Natsional'nogo komiteta SSSR po avtomaticheskому upravleniyu.
(Automatic control--Congresses)

TRAPEZNIKOV, Vadim Aleksandrovich, akademik; KANGER, A.I., red.;
RAKITIN, I.T., tekhn. red.

[Automation and mankind] Avtomatika i chelovechestvo. Moskva,
Izd-vo "Znanie," 1962. 29 p. (Narodnyi universitet kul'tury:
Tekhniko-ekonomicheskii fakul'tet, no.8) (MIRA 15:10)
(Automation)

BERG, A.I., glav. red.; TRAPEZNIKOV, V.A., glav. red.; BOCHAROVA, M.D., kand. tekhn. nauk, st. nauchn. red.; DELONE, N.N., inzh., st. nauchn. red.; BARANOV, V.I., nauchn. red.; ZABELINA, Ye.P., mlad. red.; PAVLOVA, T.I., tekhn.red.

[Automation of production processes and industrial electronics; encyclopedia of modern technology] Avtomatsiya proizvodstva i promyshlennaya elektronika; entsiklopediya sovremennoi tekhniki. Glav. red. A.I.Berg i V.A.Trapeznikov. Moskva, Sovetskaia entsiklopediia. Vol.2. K - Pogreshnost' izmerenii. 1963. 528 p. (MIRA 16:12)

(Automation--Dictionaries)
(Electric engineering--Dictionaries)

TRAPEZNIKOV, V.A., akademik

Second International Congress of the International Federation on
Automatic Control. Usp. fiz. nauk 75 no.1:202-203 S '61.
(MIRA 14:9)

1. Predsedatel' Natsional'nogo komiteta SSSR po avtomaticheskому
upravleniyu.

(Automatic control--Congresses)

ORSHANSKIY, D.L., gl.red. ARUTYUNOV, K.B., red.; VORONOV, A.A., red.;
KARANDEYEV, K.B., red.; KARIBSKIY, V.V., red.; KRASIVSKIY,
S.P., red.; KULEBAKIN, V.S., red.; LOGINOV, L.I., red.;
LUKIN, V.I., red.; MALOV, V.S., red.; PAVLENKO, V.A., red.;
PETROV, B.N., red.; RAKOVSKIY, M.Ye., red.; SMAGLY, L.V.,
red.; SMIRNOV, A.D., red.; SOTSKOV, B.S., red.; STEFANI,
Ye.P., red.; TRAPEZNIKOV, V.A., red.; TSAREVSKIY, Ye.N.,
red.; LEONOVA, Ye.I., tekhn. red.

[EIKA; encyclopedia of measurements, control and automation]
EIKA; entsiklopediya izmerenii kontrolia i avtomatizatsii. Moskva, Gosenergoizdat. No.1. 1962. 243 p.
(MIRA 16:3)

(Instruments) (Automation) (Mensuration)

BERG, A.I., glav. red.; TRAPEZNIKOV, V.A., glav. red.; BERKOVICH, D.M., zasl. glav. red.; LEVICH, A.Ya., doktor tekhn. nauk, prof., zam. glav. red.; AVEN, O.I., red.; AGEYKEV, D.I., red.; kand. tekhn. nauk, dots., red.; AYZERMAN, M.A., red.; VENIKOV, V.A., doktor tekhn. nauk, prof., red.; VORONOV, A.A., doktor tekhn. nauk, prof., red.; GAVRILOV, M.A., doktor tekhn. nauk, prof., red.; ZERNOV, D.V., red.; IL'IN, V.A., doktor tekhn. nauk, prof., red.; KITOV, A.I., kand. tekhn. nauk, red.; KOGAN, B.YA., doktor tekhn. nauk, red.; KOSTOUSHOV, A.I., red.; KNINITSKIY, N.A., kand. fiz.-mat. nauk red.; LEVIN, G.A., prof. red.; LOZINSKIY, M.G., doktor tekhn. nauk, red.; LOSHIYEVSKIY, V.I., red.; MAKSAREV, Yu.Ye., red.; MASLOV, A.A., dots., red.; POPKOV, A.A., red.; RAKOVSKIY, M.Ye., red.; ROZENBERG, L.D., doktor tekhn. nauk, prof., red.; SOTSKOV, B.S., red.; TIMOFEEV, P.V., red.; USHIAKOV, V.B., doktor tekhn. nauk, red.; FEL'DBAUM, A.A., doktor tekhn. nauk, prof., red.; FROLOV, V.S., red.; KHARKEVICH, A.A., red.; KHILAMOV, A.V., kand. tekhn. nauk, red.; TSYPKIN, Ya.Z., doktor tekhn. nauk, prof., red.; CHELYUSTKIN, A.B., kand. tekhn. nauk, red.; SHREIDER, Yu.A., kand. fiz.-mat. nauk, dots., red.; BOCHAROVA, M.D., kand. tekhn. nauk, starshiy nauchnyy red.; DELONE, N.N., inzh., nauchnyy red.; BARANOV, V.I., nauchnyy red.; PAVLOVA, T.I., tekhn. red.

(Continued on next card)

BERG, A.I.--- (continued). Card 2.

[Industrial electronics and automation of production processes] Avtomatizatsiya proizvodstva i promyshlennaya elektronika. Glav. red. A.I.Berg i V.A.Trapeznikov. Moskva, Gos.nauchn. izd-vo "Sovetskaia Entsiklopedia." Vol.1. A - I. 1962. 524 p. (MIRA 15:10)

1. Chlen-korrespondent Akademii nauk SSSR (for Sotskov, Kharkevich, Zernov, Timofeyev, Popkov).
(Automatic control) (Electronic control)

S/103/62/023/003/001/016
D201/D301

AUTHOR: Trapeznikov, V.A.

TITLE: Cybernetics and automatic control

PERIODICAL: Avtomatika i telemekhanika, v. 23, no. 3, 1962,
279 - 288

TEXT: The author analyzes some of the achievements of science and technology in developing highly organized automatic control systems. After a short introduction to the philosophy of automation and of its by-product - cybernetics, as seen in living organisms and technical processes, the author considers any control process as consisting of three operations: 1) Study of the object to be controlled; 2) Development of the control strategy; 3) Its realization: With regard to the first operation, modern technology has begun to go over from the control of separate aggregates to that of complex sets. Technology is now developing machines for the study of controlled objects for which no algorithms assumed before hand for the processing of information are known. Self-adapting and

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Cybernetics and automatic control

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self-teaching arrangements are becoming possible. The imitation of the process of self-teaching is one of the important problems of cybernetics. A novel approach to the process of self-teaching was proposed by the Institut avtomatiki i telemekhaniki (Institute of Automation and Telemechanics). It is in the form of a socalled 'compactness hypothesis' which may be formulated as follows: A man absorbs a great number of various visual perceptions as a single picture if the set of points which correspond to this sensation, within the space of perceptors, is actually in some sense a compact set [Abstractor's note: The term 'compact set' has here a somewhat different meaning from the one as used in mathematical analysis]. Assuming this hypothesis the process of teaching reduces to that of drawing planes in the multi-dimensional space which divide one region from the other. This problem may be solved by a computer and some very good results in this field have been obtained at the Institute of Automation and Telemechanics with digital computers of the Vychislitel'nyy tsentr AN SSSR (Computer Center of the AS USSR). Simultaneously the Akademiya meditsinskikh nauk (Academy of Medical Sciences) are performing experiments on animals with the aim of explaining to what extent the compactness hypothesis is pro-

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Cybernetics and automatic control

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bable. Preliminary experiments have now shown that a machine which would analyze various situations and then be taught to adapt itself to a particular one only is possible. As to the second operation, the automatic control technology enters into a new period of development, characterized by automatic development of the control strategy based on criteria which become more and more general. The self-adapting optimizing systems are being introduced into various fields of industrial production processes. The problem of increasing their efficiency, however, remains. Technical problems, related to the design of optimum control systems, have resulted in the formulation of several new mathematical problems which have been successfully solved at the Matematicheskiy institut im. V.A. Steklova (Mathematical Institute im. V.A. Steklov) and proved to be an important contribution to variational calculus. Optimization of control, and in particular the Pontryagin principle of maximum, [Abstractor's note: Principle not stated] is now being applied to objects with distributed parameters. There are indications which make it possible to assume that some of the control processes in living organisms occur in accordance with the principles of optimal control. The

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author points out, however, that man's participation cannot be excluded from automatic control systems, which still represent actually 'automaton-man' systems. Their relative functions are tightly correlated, so that it is impossible to consider the technical aspects of control without taking into account the psychological and physiological factors due to the participation of man in the control process. The man should, however, be found such a place within the system as would make his participation the most useful and least tiresome. ✓

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TRAPEZNIKOV, V.A., akademik

Regulation is the main thing. Nauka i zhizn' 29 no.4:12 Ap '62.
(MIRA 15:7)

(LIFE (BIOLOGY))

"APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R001756510006-0

BABAKOV, N.A.; GAVRILOV, M.A.; IL'IN, V.A.; KULEBAKIN, V.S.; LERNER, A.
Y.; LETOV, A.M.; PORTNOV-SOKOLOV, Yu.P.; SOTSKOV, B.S.; TRA-
PEZNIKOV, V.A.; TSYPKIN, Ya.Z.

Academician B.N. Petroy; on his 50th birthday. Elektrichestvo
no. 10:92 O '63. (MIRA 16:11)

APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R001756510006-0"

TRAPEZNIKOV, V.A.

Principal trends in the development of engineering cybernetics.
Izv. AN SSSR. otd. tekhn. nauk. tekhn. kib. no.3:5-12 My-Je '63.
(MIRA 16:7)

(Automatic control) (Cybernetics)

TRAPEZNIKOV, V.A., akademik

Automation and electronics in Japan. Vest. AN SSSR 33 no.8:
:94-96 Ag '63. (MIRA 16:8)
(Japan--Automation) (Japan--Electronics)

TRAPEZNIKOV, V.A., akademik

Development of industrial cybernetics. Vest. AN SSSR 33 no.9:
3-818 '63.
(Cybernetics)

BERG,A.I.,glav.red.; TRAPEZNIKOV,V.A.,glav.red.; TSYPKIN, Ya.Z., doktor tekhn.nauk,prof.,red.; VOROTOV,A.A., doktor tekhn.nauk,prof.,red.; SOTSKOV,B.S., doktor tekhn.nauk,red.; AGEYKIN,D.I., doktor tekhn. nauk, red.; GAVRILOV,M.A., red.; VENIKOV,V.A., doktor tekhn.nauk, prof.,red.; CHELYUSTKIN,A.B., doktor tekhn. nauk,red.; PROKOF'YEV, V.N., doktor tekhn.nauk,prof.,red.; IL'IN,V.A., doktor tekhn.nauk, prof.,red.; KITOVA,I.A.,doktor tekhn.nauk,red.; KRINITSKIY, N.A., kand. fiz.-matem.nauk,red.; KOGAN,B.Ya., doktor tekhn.nauk, red.; USHAKOV,V.B., doktor tekhn.nauk,red.; LERMER,Yu.A., doktor tekhn. nauk,prof., red.; FEL'DBAUM, A.A.,prof., doktor tekhn.nauk,red.; SHREYDER,Yu.A., kand. fiz.-mat. nauk,dots.,red.; KHARKEVICH,A.A., akad., red.;TIMOFEEV,P.V., red.; MASLOV,A.A.,dots.,red.; LEVIN, G.A., prof.,red.; LOZINSKIY,M.G., doktor tekhn.nauk,red.; NETUSHIL, A.V., doktor tekhn.nauk,prof.,red.; POPKOV,V.I.,red.; ROZENBERG, L.D.,doktor tekhn.nauk,prof.,red.; LIVSHITS,A.L.,kand.tekhn.nauk,red.

[Automation of production and industrial electronics] Avtomatizatsiya proizvodstva i promyshlennia elektronika; entsiklopediia sovremennoi tekhniki. Moskva, Sovetskaia Entsiklopediia. Vol.3. Pogreshnost' reshenii - Teleizmeritel'naia sistema chastotnaia. 1964. 487 p. (MIRA 17:10)

J. Chlen-korrespondent AN SSSR (for Sotskov, Gavrilov, Timofeyev, Popkov).

TRAPEZNIKOV, V., akademik

For flexible management of enterprises. Podn org 13 no.11:525-526
N 164.

BERG, A.I., glav. red.; TRAPEZNIKOV, V.A., glav. red.; TSYPKIN,
V.A., doktor tekhn. nauk, prof., red.; VORONOV A.A.,
prof., red.; AGEYKIN, D.I., doktor tekhn. nauk red.; GAVRILOV,
V.A., red.; VENIKOV, V.A., doktor tekhn. nauk, prof., red.;
SOTSKOV, B.S., red.; CHELYUSTKIN, A.B., doktor tekhn. nauk,
red.; PROKOF'IEV, V.N., doktor tekhn. nauk, prof., red.;
IL'IN, V.A., doktor tekhn. nauk, prof., red.; KITOV, A.I.,
doktor tekhn. nauk, red.; KRIMITSKIY, N.A., kand. fiz. mat.
nauk, red.; KOCAN, B.Ya., doktor tekhn. nauk, red.; USHAKOV,
V.B., doktor tekhn. nauk, red.; LERNER, A.Ya., doktor tekhn.
nauk, prof., red.; FEL'DBAUM, A.A., doktor tekhn. nauk, prof.,
red.; SHREYDER, Yu.A., kand. fiz.-mat. nauk, red.; KHARKEVICH,
A.A., akademik, red. [deceased]; TIMOFEEV, P.V., red.;
MASLOV, A.A., dots., red.; TRUTKO, A.F., inzh., red.; LEVIN,
G.A., prof., red.; LOZINSKIY, M.G., doktor tekhn. nauk, red.;
NETUSHIL, A.V., doktor tekhn. nauk, prof., red.; POPKOV, V.I.,
red.; ROZENBERG, L.D., doktor tekhn. nauk, prof., red.;
LIFSHITS, A.L., kand. tekhn. nauk, red.; AVEN, O.I., kand.
tekhn. nauk, red.; BLANN, O.M [Blunn, O.M.], red.; BRODYA, V.,
inzh., prof., red.; BREKKL', L [Brockl, L.] inzh., knad. nauk, red.;
VAYKHARDT, Kh. [Weichardt, H.], inzh., red.; BOCHAROVA, M.D., kand.
tekhn. nauk, st. nauchn. red.

[Automation of production processes and industrial electronics]
Avtomatizatsiya proizvodstva i promyshlennaya elektronika; entsiklo-
pediya sovremennoi tekhniki. Moskva, Sovetskaia entsiklopedia.
"TRA 18:6)
Vol.4. 1965. 543 p.

L 2645-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l)
ACCESSION NR: AP5025743

IJP(c) GG/BB
UR/0286/65/000/018/0091/0092
681.142-523.8

AUTHOR: Vedeshnikov, V. A.; Volkov, A. F.; Zenkin, V. D.; Trapeznikov, V. A.;
Turkovskaya, T. A.

TITLE: A digital computer with programmed circuit control. Class 42, No. 174844

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 18, 1965, 91-92

TOPIC TAGS: digital computer, automatic computer programming, self adaptive control

ABSTRACT: This Author's Certificate introduces a digital computer with programmed circuit monitoring. The unit contains a control counter, instruction memory, instruction readout amplifier, instruction register, operation decoder, central control unit, control pulse amplifiers, arithmetic unit, working storage, and an input output device. The installation is designed for automatically and accurately finding elements that fail. The computer contains a microoperation zone decoder and a pilot signal shaper which are connected together and to the readout amplifiers for the instruction memory. The outputs from the pilot signal shaper are connected to the central control unit, the local control unit, and the control signal amplifier

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ACCESSION NR: AP5025743

unit. The computer also contains a microcontrol unit which is connected to the central control unit and to the control signal amplifiers, and a device for recording the point of failure, which is connected to the instruction memory readout amplifiers. A modification of this computer is designed for transition from macrooperation to microoperation conditions to improve the resolution of diagnostic tests. The microcontrol unit in this computer contains the first gate for interpretation of operating conditions. The inputs to this gate are connected respectively to the unit for sampling commands from the instruction memory and to the flip-flop for storage of operating conditions. The output from this flip-flop is connected to a delay circuit through gates which are connected to the outputs from the microoperation zone decoders which correspond to microoperations for setting the flip-flops of the computer. The delay circuit is connected through a gating assembly to the outputs from the control signal amplifiers. The output from the delay circuit is connected to the input of the instruction sampler. The second gate for interpretation of operating instructions is connected to the input of the delay circuit. The inputs to this gate are connected respectively to the instruction sampler and to the inverse output from the flip-flop for storage of operating conditions through the gate for transition from macrocontrol to microcontrol conditions. The output from the delay circuit is connected in parallel with the output from the first gate for

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2

interpretation of operating conditions. In a second modification of this computer, the number of points which can be monitored is increased by using an input register in the microoperation zone decoder. This register is connected to the decoder, and the outputs from the decoder are connected to the control points. In a third modification of this computer, indication of a point of failure is simplified by using an input register in the failure indicator with binary-digital code for the number of non-operative element. This register is connected to decimal indicators through a decoder which converts the register code into decimal positional notation. A fourth modification of this computer is designed for automatically and accurately indicating points of failure. The pilot signal shaper in this computer contains gates with inputs connected respectively to the microoperation zone decoder and to the readout amplifiers for the instruction memory. The outputs from these gates are connected to the elements to be monitored.

ASSOCIATION: Institut avtomatiki i telemekhaniki (Institute of Automation and Telemechanics)

SUBMITTED: 27 Jun 64

ENCL: 00

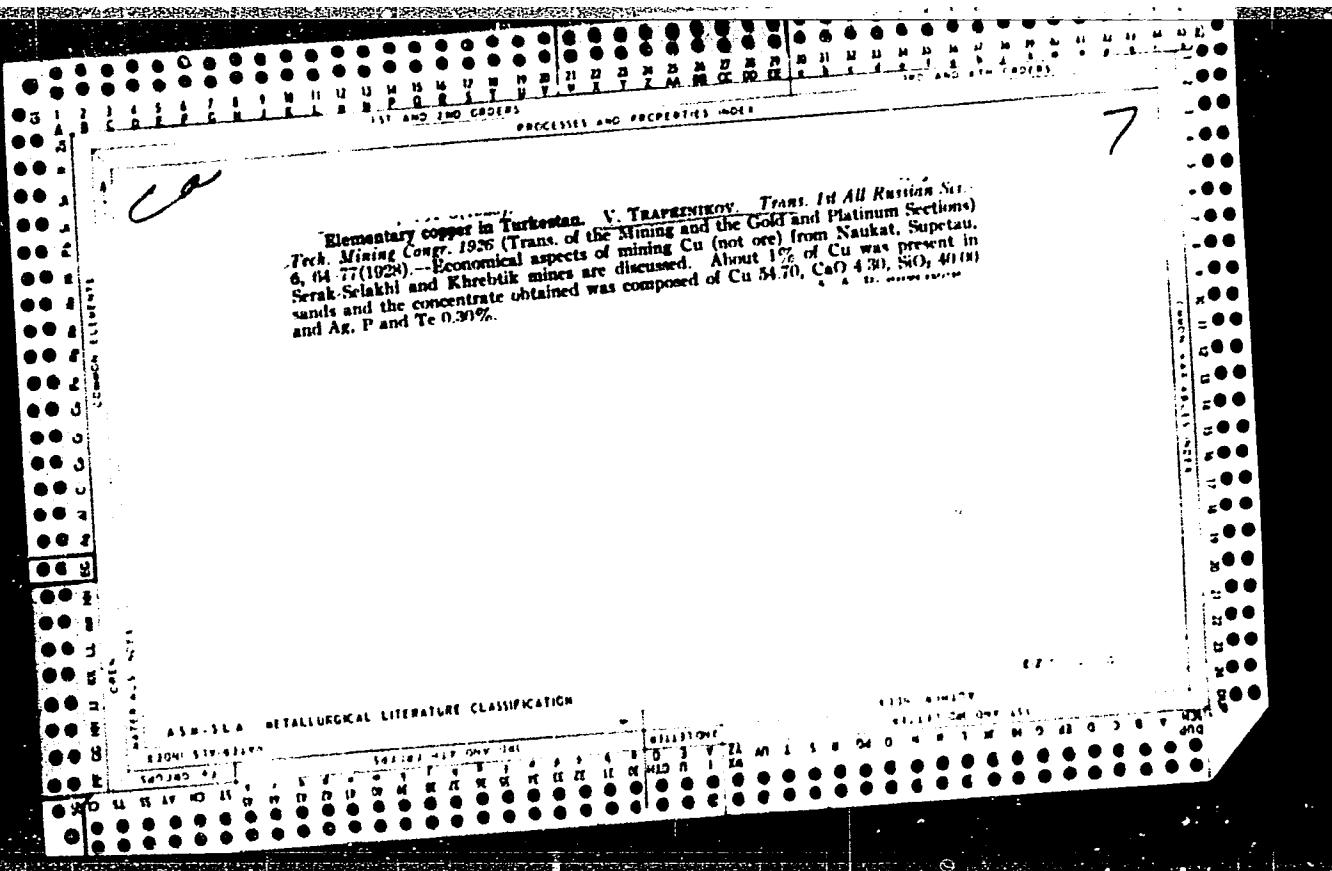
SUB CODE: DP

NO REF SOV: 000

OTHER: 000

ATD PRESS: 4104

Card 3/3 RP



TRAPEZNIKOV, V. A. and NEMNONOV, S. A.

"The problem pertaining to the local heterogeneity of concentrating dissolved element in solid solutions", appearing in the "Works of the Institute on the Physics of Metals, Issue 16, Collection of Research Papers on Diffusion and Internal Adsorption in Metals and Alloys", (Trudy Instituta Fiziki Metallov, vypusk 16, Sbornik Rabot Po Issledvaniyu Diffuzii I Vrutrennei Adsorbsii V Metallakh I Splavakh), published by Ural Branch of the Academy of Science USSR, p 123, 1955.

TRAPEZNİKOV, V.A.

USSR / Laboratory Equipment. Apparatuses, Their
Theory, Construction and Application. I

Abs Jour: Referat. Zhur.-Khimiya, No. 8, 1957, 27321.

Author : V.A. Trapeznikov, S.A. Nemnonov.

Title : X-Ray Vacuum Spectrograph with Bent Crystal.

Orig Pub: Fiz. metallov a metallovedeniye, 1955, 1, No. 3,
562 - 563.

Abstract: no abstract.

Card 1/1

TRAPEZNIKOV, V. A. and AGEYEV, N. B.

"The Production and Properties of Chromium Iodide," the second article in the book Investigation of Heat-Resistant Alloys, publ. by AS USSR, Moscow, 1956, 160 pages.

Sum. No. 1047, 31 Aug 56

TRAPEZNIKOV, V. L.

TRAPEZNIKOV, V. L. --"X-ray Spectroscopic Investigation of Molybdenum Alloys." Min Higher Education USSR, Ural State University imeni A. V. Gor'kiy, Sverdlovsk, 1956
(Dissertations for the degree of Candidate in Physicomathematical Sciences.)

KHIMICHESKAIA KETOPIA
No. 41, October 1956

Category : USSR/Solid State Physics - Morphology of Crystals. Crystallization

E-7

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 1292

Author : Ageyev, N.V., Trapeznikov, V.A.

Title : Production of Ioditic Chromium and its Properties

Orig Pub : Issledovaniya po zharoprochnym splavam. M., AN SSSR, 1956, 17-24

Abstract : Apparatus was developed to obtain ioditic chromium by thermal decomposition of chromium iodide at 1100 -- 1150° on an incandescent tungsten filament or on quartz-glass tubes. The latter method has many advantages and results in larger amounts of chromium. The process of obtaining chromium iodide was carried out in a quartz flask at 850 -- 900° in a vacuum of 10^{-5} mm mercury. The initial material is electrolytic chromium, reduced in a stream of dry and purified hydrogen. There are practically no metallic impurities. The basic impurities are gases (principally O₂, N₂, and C, the contents of which is less than in other types of chromium). The small crystals of ioditic chromium measure 0.3 -- 0.8 mm, their microhardness is 120 -- 190 kg/mm², and the microhardness of electrolytic chromium is 150 -- 250 kg/mm². A plate of ioditic chromium can be deformed by compression to a 50% reduction in height at a deformation rate of 10 mm/min without formation of cracks. When subjected to similar conditions, electrolytic chromium cracks when compressed by 15%.

Card : 1/1

"APPROVED FOR RELEASE: 03/20/2001

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FRAPETSKY, V.

2773 (Rev. 1) Medium Color Negative Film in Low Movi-

APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R001756510006-0"

the fine structure to nearest-neighbour effects. Using the A and later theories of Kostarev, P. and N. deduced the variation of binding energy with temp. and compn. for Fe-Mo alloys.

-A. F. B.

"APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R001756510006-0

APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R001756510006-0"

TRAPEZNIKOV, V.A.

137-58-5-10599

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 248 (USSR)

AUTHORS: Savitskiy, Ye. M., Trapeznikov, V.A.

TITLE: Evaluating the Transition of Chromium From the Brittle to the Ductile State (K voprosu ob otsenke perekhoda khroma iz khrupkogo sostoyaniya v plastichnoye)

PERIODICAL: V sb.: Issled. po zharoprochn. splavam. Vol 2. Moscow, AN SSSR, 1957, pp 141-147

ABSTRACT: A study is made of the possibility of determining the temperature of Cr transition from the brittle to the ductile state by static testing for compression along a single axis and by measurement of hardness. A design of a device for hot tests for static monoaxial compression is presented. The experiments were run with electrolytic Cr, reduced in a current of dry and purified H₂ and then resmelted in a current of technical Ar in an induction furnace. Experiments were also run with industrial aluminothermic Cr, resmelted in similar fashion in a current of technical Ar. It is established that in an interval ranging from room temperature to 250°C for electrolytic Cr and to 300° for aluminothermic Cr, the ductility (D) changes insignificantly,

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Evaluating the Transition of (cont.)

and in this temperature interval Cr displays brittle failure (F). At temperatures of $\sim 250^{\circ}$ and 300° , depending upon the degree of purity, Cr reveals a sharp transition from a region of brittleness to a state of ductility, terminating at about 400° , after which a gradual smooth rise in D is observed and the metal exhibits ductile F. It is shown that the purer the Cr and the higher the temperature and lower the time rate of elongation applied to the metal, the greater its D and the lower the temperature of transition from the brittle to the plastic state. Hardness tests showed that the hardness method also affords a fairly precise determination of the temperature at which the transition of Cr to the region of ductile F terminates and an evaluation of the influence of the level of purity of the metal upon its D on heating.

1. Chromium--Phase studies 2. Temperature--Determination

V.N.

Card 2/2

TRAPEZNINOV, V.A.

126-1-2/40

AUTHOR: Trapeznikov, V.A.

TITLE: On the Fine Structure of X-ray Absorption Spectra of Solids
(K teorii tonkoy struktury rentgenovskikh spektrov
pogloshcheniya tverdykh tel)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol.V, Nr 1,
pp.8-16 (USSR)

ABSTRACT: The fine structure of X-ray absorption spectra of solids is, according to the theory of A.I.Kostarev (Ref.1), due to the scattering of electron waves emitted on absorption by the "near neighbour" atoms, i.e., it depends on the nature of these atoms and other local factors. Kostarev considered the relative importance of the different layers surrounding the absorbing atom (Ref.2) and took into account the effect of thermal vibrations of atoms on the fine structure of the absorption edge (Refs.3 and 4). In the present work an attempt is made to explain the experimentally observed irregular changes in the ratio of the fluctuation amplitudes of the fine structure with temperature and concentration (Refs.5-8) and to use this phenomenon to study the bond forces, as was suggested in Ref.(5). A method of calculating the ratio Ψ_k''/Ψ_k' is described and its dependence on temperature and concentration is considered. It is shown

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On the Fine Structure of X-ray Absorption Spectra of Solids.

that the ratio of the short wave fluctuation to the long wave fluctuation changes irregularly with temperature and concentration. The general form of Φ_k''/Φ_k , as a function of temperature is shown in the second diagram of Fig.1. The curve has a maximum which for copper, iron, molybdenum and certain other elements occurs at temperatures greater than $T = 0.6 \times \Theta$. The calculation of Φ_k''/Φ_k , requires a knowledge of S and A as well as their derivatives with respect to T and Θ which requires that one must know Θ as a function of T and c (cf. Ref.3). The magnitude of A can be calculated from Eq.(2) of the present paper and S for a given temperature can be calculated from Eq.(28) of Ref.(3). The two functions, $\Theta = \Theta(T)$ and $\Theta = \Theta(c)$ cannot be obtained by calculation and must be obtained experimentally. The first of these two functional equations can be obtained by calculating a number of values Θ from a knowledge of C_v in accordance with Debye's law. The appropriate data for the latter calculation is given in Ref.(10). An idea as to the form of $\Theta = \Theta(c)$ can be obtained from a determination of Θ for different alloys. An attempt is made to

Card 2/3

126-1-2/40

On the Fine Structure of X-ray Absorption Spectra of Solids.

compare the calculations with the experimental data and a general agreement is obtained.

There is 1 diagram and there are 13 references, 7 of which are Slavic.

ASSOCIATION: Institute of Physics of Metals, Ural Branch of the Ac.Sc., USSR (Institut Fiziki Metallov Ural'skogo Filiala AN SSSR)

SUBMITTED: November 28, 1956.

AVAILABLE: Library of Congress.

Card 3/3

TRAPEZNIKOV, V. A. and NEMNONOV, S. A.

"Investigation of Binding Forces in Solid Iron-Molybdenum Solutions According to the Fine Structures of X-ray Absorption Spectra"

Materials of the 2nd All-Union Conference on X-ray Spectroscopy; Moscow, January 31 February 4, 1957 (Materialy II Vsesoyuznogo soveshchaniya po rentgenovskoy spektroskopii; Moskva, 31 yanvarya - fevralya 1957 g.)

Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1957, Vol 21, Nr 10, pp 1341 - 1342 (USSR)

UFAN SSSR

TRAPEZNIKOV, V. A.

"Relationship of Temperature and Concentration of Fine Structure of X-ray
Absorption Spectra of Solids and an Investigation of Binding Forces"

Materials of the 2nd All-Union Conference on X-ray Spectroscopy; Moscow, January
31 February 4, 1957 (Materialy II Vsesoyuznogo soveshchaniya po rentgenovskoy
spektroskopii; Moskva, 31 yanvarya - fevralya 1957 g.)

Izvestiya Akademii nauk SSSR, Seriya fizicheskaya 1957, Vol 21, Nr. 10, pp 1341 -
1342 (USSR)

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TRAPEZNIKOV, V. A.

SOV/3728

PAGE 1 BOOK REVOLUTION

Akademika SSSR. Institut metallurgii
Sovremennye problemy metallicheskogo (Modern Problems in Metallurgy)
Moscow, Izd-vo Akad. SSSR, 1958. 640 p. 3,000 copies printed.Rep. M.: A.N. Semenov, Corresponding Member, USSR Academy of
Sciences; Eds. of Publishing House: V.D. Katerinikov, and
A.M. Demurov; Tech. Ed.: T.V. Polyakova.PURPOSE: This book is intended for scientific and technical per-
sonnel in the field of metallurgy.CONTENTS: This is a collection of articles on certain aspects of
Soviet metallurgy. The book is dedicated to Academician
A.S. Pavlovich Martin on the occasion of his 75th birthday. The
book is divided into seven parts. The first part consists of
two articles presenting a brief account of the biography and
professional activity of the Soviet metallurgist. It includes an
article by John Chapman, Nicholas Grant, and John Elliott (U.S.A.)
describing their meeting with Berlin in Moscow and also his
visit to the United States. The second part consists of three
articles and deals with raw materials and fuels for the Soviet
metallurgical industry. The third part represents the major
portion of the book. It consists of 25 articles dealing with
the various aspects of the metallurgy of pig iron and steel.
The fourth part consists of two articles treating the metal-
lurgy of nonferrous metals. The fifth part consists of three
articles on the forming of metals. The sixth part consists of three
articles discussing certain aspects of physical metal-
lurgy. The last part deals with general problems in the field
of metallurgy. References are given after each article. No
personalities are mentioned.

TABLE OF CONTENTS:

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Modern Problems in Metallurgy

Korshunov, O.V. [Academian, Central Scientific Research In-
stitute of Ferrous Metallurgy]. The Nature of Martensite
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Member, AS USSR, Metallurgical Institute Iamni A.I. Baytor,
AS USSR and Physical Institute DURAM]. The Nature of
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Institute Iamni A.A. Savrov, AS USSR] Structural Theory
of the Creep of Metals 564Zaitsev Isao [Doctor of Technical Sciences, Corresponding
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Characteristics of Structural Steel Properties as Determined
by the Work of Maximum Deformation 572

card 11/12

NEMNONOV, S.A.; TRAPEZNIKOV, V.A.; KOLOBOVA, K.M.

X-ray spectroscopic investigation of iron-molybdenum and iron-aluminum
alloys. Issl. po zharopr. splav. 3:279-291 '58. (MIRA 11:11)
(Iron-molybdenum-alloys--Metallography)
(Iron-aluminum alloys--Metallography) (X-ray spectroscopy)

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17.1000

SOV/58-59-4-8056

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 4, pp 101 - 102 (USSR)

AUTHOR: Trapeznikov, V.A.

21

TITLE: Application of the X-Ray Absorption Method to the Solution of Some
Problems in Solid State Physics

22

PERIODICAL: Tr. In-ta fiz. metallov. Ural'skiy fil. AS USSR, 1958, Nr 20, pp 187-199

ABSTRACT: The results of X-ray spectroscopy studies are strongly influenced by
that excitation state in which one finds the solid-state atom emitting
or absorbing X-ray quanta. The X-ray spectrum region which is least
distorted on account of excitation is that fine-structure region of the
absorption spectrum which is situated hundreds of electron-volts to the
short-wave side of the absorption edge. The ratio of the amplitude of
fine-structure short-wave fluctuation to the amplitude of long-wave
fluctuation, as it ensues from experiment, varies non-uniformly with the
temperature. This phenomenon is studied within the framework of Kostarev's
theory by taking into account the temperature dependence of the Debye
characteristic temperature Θ . The results make it possible to examine
theoretically the concentration dependence of the above-mentioned ratio when

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SOV/58-59-4-8056

Application of the X-Ray Absorption Method to the Solution of Some Problems in Solid State Physics

studying the fine structure of the absorption edge of a solid solution, insofar as θ varies with a change in the concentration. The author submits a detailed comparison of the theory with the experiment. The developed method affords the possibility of utilizing the results of investigating the fine structure of the absorption edge in estimating the variation of binding energies in alloys with a variation in the concentration and temperature. The bibliography contains 22 titles.

V.V. Shmidt

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Card 2/2

PHASE I ROCK BURDEN

301/2003

TRAPZNIKOV, V. A.

PURPOSE: This book is intended for constructionalists and other persons interested in the strength of materials.

CONTENTS: This collection of articles was compiled by the Mechanical Sciences Department of Applied Physics Institute of Applied Physics Mathematics and Mechanics Institute of USSR (Institute of Sciences, founded by the P. I. Moshchitsky Institute of Physics, Academy of Sciences, USSR) in commemoration of the 80th birthday of Nikolai Nikolaevich Arsen'yan, Member of the Ukrainian Academy of Sciences, USSR, Head of the Odessa Prochnostniy Materials Department (Department of Physics and Head of the Institute of Applied Physics, Academy of Sciences, USSR), founder of the Faculty of Strength of Materials of the Metallurgical Institute of Politechnical University at the Leningradsky Polytechnic Institute (1941), the author of the article "Strength of Materials" in the Encyclopedia of Soviet Science and Technology (1953), a member of the Order of Lenin (1955), a member of the Order of the St. Sava (1955), a member of the Order of Labor of Lenin (1955), a member of the Order of the Red Banner of Labor (1955) and the Order of the Red Banner of Labor (1955).

The author of this book, N. N. Arsen'yan, has made significant contributions to the theory of the strength of materials, phenomena of brittleness, fatigue of metals and alloys, the interaction of hydrogen embrittlement with the properties of materials, the mechanical properties of materials and mechanical properties of materials under the action of temperature, pressure, vibration, impact, etc. The author's work on the mechanical properties of materials and mechanical problems in the introduction of new materials into production is also of great interest.

REFERENCES: References are given at the end of each article.

152	Khurshudyan, L.S., and Yu.D. Baskin. Investigation of the Structure and Properties of Two-Phase Titanium Alloys.
165	Dobat, I.M., and G.P. Smirnov. Hydrogen Embrittlement of Steel and the Influence of Mechanical Testing Conditions on Its Occurrence.
165	Dobat, I.M., and G.P. Smirnov. (Institute for Metal Science and Materials, USSR, Gorkovsk) Structure of Structural Steel.
172	Saburov, Yu.N., V.D. Slobodkin, and S.M. Pasternak. Temper Britteness of Steel.
172	Saburov, Yu.N., V.D. Slobodkin, and S.M. Pasternak. (Institute for Metal Science and Materials, USSR, Gorkovsk).
179	Agranov, E.V., and V.A. Tsvetkov. Institute of Metallurgy, USSR, Gorkovsk. Negative - No. 1. Metallurgical Institute, Academy of Sciences and Other Properties of Cast Iron - No. 2. The Degree of Purity on Cold Brittleness and Other Properties of Cast Iron.
187	Martyn, I.G., F.N. Dzhankhez, and N.N. Dzhankhez. Cold Hardening of Steel - Little Steel with an External Layer of Autoweldic Steel Alloy.
187	Martyn, I.G., F.N. Dzhankhez, and N.N. Dzhankhez. Effect of the Cooling - Little Steel with an External Layer of Autoweldic Steel Alloy.
201	Gorbunov, E.S. (Industrialny Institute Imeni Kurchatova, G. Relyevsky - Industrialny Institute Imeni Relyevsky, Novosibirsk). Effect of the Cooling - Little Steel with an External Layer of Autoweldic Steel Alloy.
201	Gorbunov, E.S. (Industrialny Institute Imeni Kurchatova, G. Relyevsky, Novosibirsk). Influence of Chromium-Aluminum Slags on Fatigue Strength of Steel and Some Other Factors on Fatigue Strength of Steel.
19	Shevchenko, Ye.M. (Zvezda), I.A. Raco, and A.Y. Mel'nik. Influence of Shear Strain Rate During Plastic Deformation and Fatigue of Steel as a Function of Scale Factor.
20	Kontorzonov, I.M., and Ya.I. Timoshuk. Influence of a High Deformation Rate on the Mechanical Properties of Steel Alloy Type V95 After Varying Degree of Aging.
20	Kontorzonov, I.M., and Ya.I. Timoshuk. Influence of Mechanical Properties of Steel Alloy V95 After Varying Degree of Aging.
2	Ulyanov, G.V., and Yu.Ye. Volobekh. Elastoplastic Resistance of Mechanical Properties of Steel Under Low-Temperature Conditions.
2	Ulyanov, G.V., and Yu.Ye. Volobekh. Resistance of Metal Fatigue Under Impact Stress Under Low-Temperature Conditions.
2	Ulyanov, G.V., and Yu.Ye. Volobekh. Plastic Deformation of Metal Fatigue.
2	Ulyanov, G.V., and Yu.Ye. Volobekh. Physical Nature of Metal Fatigue.
2	Ulyanov, G.V., and Yu.Ye. Volobekh. Central Scientific Research Institute of Technology and Machinery - Fatigue Strength of Large Plates.
2	Rudnevskiy, I.V., and N.M. Savchenko. (Mashinostroyeniye) - Central Scientific Research Institute of Technology and Machinery - Fatigue Strength of Large Plates.

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TRAPEZNIKOV, V. A.

SOV/3355

PHASE I BOOK EXPLOITATION

18(7) Muchnyy, Sovet po
Akademii nauk SSSR. Institut metalurgii.
problemy zharoprotchynih spalov
izaledorivani po zharoprotchynym spalavam. t. IV (studijon heat-r-
istant alloys, vol. 4). Muchnyy Izd-vo AN SSSR, 1959. 400 p.
Krewe slip inserted. 2,25 copies printed.

Ed. of Publishing House: V. A. Klimov; Tech. Ed.: A. P. Guseva;
Ed. of Editorial Board: I. P. Bardin; Academician: G. V. Kudryavov, Member USSR Academy of
Academicians: N. V. Aspary; Corresponding Member: I. P. Zudin, Candidate
Sciences: I. A. Oding; I. M. Pavlov, and
of Technical Sciences.

PURPOSE: This book is intended for metallurgists concerned with

the structural metallurgy of alloys.

COVERAGE: This is a collection of specialized studies of various
problems in the structural metallurgy of heat-resistant alloys.
Some are concerned with theoretical principles, some with de-
scriptions of new equipment and methods, others with properties

of specific materials. Various phenomena occurring under
specified conditions are studied and reported on. For details,
see Table of contents. The articles are accompanied by a num-
ber of references, both Soviet and non-Soviet.

SOV/3355

Studies (Cont.)

- Bilimayev A. P., and I. V. Chernenko. Effect of Plastic
Deformation at Low Temperature on the Heat-resistant
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- Savitskiy, Ye. M., and N. A. Filkins. Recrystallization of
the Refractory Metals Titanium, Hafnium, Zirconium, Rhenium,
and Tungsten, and Their Alloys. 218
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of Structure on Plasticity of Chromium
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- Svechnikov, V. M., Yu. A. Kocherzhinsky, V. K. Pan,
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Diagram of the Ternary System Chromium-Tungsten-Polydene. 257

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24(4)

AUTHOR:

Trapeznikov, V. A.

SOV/126-7-2-23/39

TITLE:

The Effect of Reabsorption on the Shortest Wavelength Line in an X-ray Emission Series (Uchet reabsorbsii dlya samoy korotkovoynoy linii rentgenovskoy serii ispuskaniya)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol 7, Nr 2,
pp 294-295 (USSR)

ABSTRACT: In the case of the shortest wavelength line in a given X-ray emission series one often observes that on the short wavelength side the background intensity is much lower than on the long wavelength side (Refs 1-3). This is explained by the reabsorption of the radiation corresponding to the short wavelength part of the line under consideration by the substance under study. It was shown in Ref 1 using the $L_{\beta 2}$ Mo line that the longer the path traversed by the β radiation in the material during its exit from the anode in the direction of the crystal, the greater is the absorption of the short wavelength part of the line. If one knows the form of the corresponding absorption edge, the line distortion due to the reabsorption may be calculated.

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Card 2/2

APPROVED FOR RELEASE: 03/20/2001

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TRAPEZNIKOV, V.A.

Rotating x-ray tube for vacuum spectrography. Fiz. met. i
metalloved. 9 no. 4:639-640 Ap '60. (MIRA 14:5)

1. Institut fiziki metallov AN SSSR.
(X-ray spectroscopy)

18.4000

77636
SOV/80-33-2-11/32

AUTHORS: Ageyev, N. V., Fogel', A. A., Sidorova, T. A., Trapeznizov,
V. A.

TITLE: Melting Chromium in a Suspended State

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 2, pp 332-337
(USSR)

ABSTRACT: The use of chromium as a base for heat-resistant alloys presents difficulties due to the brittleness of this metal caused by various impurities. One of the authors (A. A. Fogel, Izv. AN SSSR, OTN, 1959, Vol 2, p 24; Experimental Technique and Methods of Investigation at High Temperatures (Eksperimental'naya tekhnika i metody issledovaniy pri vysokikh temperaturakh) publ. by AN SSSR, 1959, p 478) developed a method of melting chromium which dispensed with the use of a crucible and avoided in this manner the contamination of the metal with mineral and gaseous impurities. The metal was kept suspended in an electromagnetic field, and melted by induction heating

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Melting Chromium in a Suspended State

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in purified helium atmosphere. The melting apparatus was fed by a standard electronic generator type LGFZ-60 with a frequency of 200,000 hertz. The initial vacuum in the melting chamber before the introduction of helium was from $3 \cdot 10^{-3}$ to $5 \cdot 10^{-6}$ mm Hg, depending on the conditions of the experiment. To avoid volatilization of the metal, the melting was made under 1.1-1.2 atm helium pressure. The gas was carefully purified by passing it through a adsorbing filter filled with activated carbon and silica gel, cooled down to the boiling point of liquid nitrogen. Chromium samples were prepared from electrolytically refined metal, or from metal purified by means of the iodide method, designated in this abstract as "iodide chromium". Little spheres (d - about 16 mm; weight, 12-15 g) were compressed from the above materials and degassed before melting by slow heating in high vacuum (about 10^{-5} mm Hg). The metal was maintained suspended in the magnetic field until fully molten; when the field was switched

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off, the metal dropped into a copper casting mold. From 100 cast samples, 25% showed a lower content of nitrogen as compared with the initial content, 73% showed no changes, and 2% showed a higher than initial nitrogen content. The electrolytic chromium used in the experiments contained: O, 0.0084-0.013%; N, 0.008-0.0108%; H, about 0.001%; C, 0.020-0.025%; S, 0.003-0.004%; Si, 0.040%; Fe, 0.030%; Al, 0.01-0.015%; Mn, 0.003%; Ni, 0.0007%; Cu, 0.001-0.004%; Ti, 0.006%; Co, 0.001%. The compressed spheres showed 0.0103-0.0122% oxygen on the surface, and 0.0082-0.0092% near the center; nitrogen content was respectively 0.012% and 0.0073%. The melting took 105 sec, and the O and N content inside the cast samples was, respectively, 0.0068-0.0110%, and 0.0030-0.0069%, i.e., the O and N content did not increase during the melting and casting. Similar results were obtained with the iodide chromium (about 0.005% oxygen, and about 0.006% nitrogen inside the cast samples). Hardness of the cast samples

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Melting Chromium in a Suspended State

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(Rockwell scale B converted to Brinell) was 115-116 kg/mm² for the electrolytic, and 108-110 kg/mm² for the iodide chromium. Tensile strain of the electrolytic chromium castings was determined in an IM-4P type machine in the range of 45-400° C. The yield point was reached above 250° C, but even at 450° C the tensile strain was only 3%. Compression tests showed that the point of transition from plastic to brittle state (at 150-175° C) was identical for both the electrolytic and the iodide chromium casts. There are 5 figures; and 5 Soviet references.

ASSOCIATION: A. A. Baykov Institute of metallurgy, Academy of Sciences USSR (Institut metallurgii imeni A. A. Baykova AN SSSR)

SUBMITTED: June 6, 1959

Card 4/4

S/126/61/012/006/022/023
E039/E435

AUTHOR: Trapeznikov, V.A.
TITLE: A method of determining the thickness of coatings by
re-absorption
PERIODICAL: Fizika metallov i metallovedeniye, v.12, no.6, 1961,
925-926

TEXT: By observing the distortion of the shortest wavelength line of a given X-ray emission series, it is possible to estimate the thickness of coatings within the limits of the depth of penetration of the electrons exciting the spectrum. The distortion of the L-emission spectra of molybdenum for the pure metal and in compounds is shown in the figure. By experimentally determining the background intensity from the longwave side of the line, where there is no re-absorption, and from the shortwave side where re-absorption occurs, a value for the re-absorption coefficient q can be obtained. Values for the coating thickness x_{max} are also obtained from theoretical considerations for two particular cases: 1. When the excitation is by electrons having an energy equal to or somewhat greater than

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S/126/61/012/006/022/023
E039/E435

A method of determining ...

the ionization potential of the given series, giving

$$x_{\max} = \frac{\cos \beta q}{\tau} \quad (4)$$

(for small thicknesses).

2. When the excitation is by electrons with an energy considerably in excess of the ionization potential

$$x_{\max} = \frac{\cos \beta}{\tau} \left[q - \ln 2 - \ln(1 - e^{q - \ln 2}) \right] \quad (5)$$

(for much larger thicknesses);

where β is the angle between the perpendicular to the anode surface and the direction of the excited radiation, τ is the coefficient of absorption of the shortwave part of the excited radiation. The range of measured thicknesses extends from hundreds of Angstroms to tens of microns. From the experimentally determined values of the re-absorption coefficient q for the pure elements Mo, Ni, Fe and their compounds and the value of τ for these elements, maximum distances of the path of the excited

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S/126/61/012/006/022/023
E039/E435

A method of determining ...

radiation through the material of the anode were obtained. These values agree well with the calculated values shown in the table. As the angle of emergence β is known, we can determine the thickness of the coating. This method of determining coating thicknesses may be used for analysis. With a constant voltage on the X-ray tube it provides a possibility of determining the proportion of an investigated substance in an alloy with respect to the quantity of this substance in a standard specimen. There are 1 figure, 1 table and 2 references: 1 Soviet-bloc and 1 non-Soviet-bloc. The reference to an English language publication reads as follows: Ref.2: Hansom H.P., Herrera. J. Phys. Rev., v.105, 1957, 1483.

[Abstractor's note: Abridged Translation.]

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals AS USSR)

SUBMITTED: June 3, 1961

Card 3/ ~~3~~ 3

18-8100
24.6110

2808, 1413, 1118
1160, 1395, 1182

26333
S/048/61/025/008/007/009
B104/B202

AUTHOR: Trapeznikov, V. A.

TITLE: Study of the binding forces of solid nickel-molybdenum
solutions according to the fine structure of X-ray
absorption spectra

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,
v. 25, no. 8, 1961, 994-996

TEXT: The present paper was the subject of a lecture delivered at the
5th Conference on X-ray Spectroscopy at Khar'kov, January 30 to
February 4, 1961. The author presents experimental data on the fluctua-
tion amplitudes of the K absorption edge of nickel in solid nickel-
molybdenum solutions with 0, 0.5, 1, 2, 4, 8, and 15 wt% Mo. The ratio
of the fifth fluctuation, E, (Fig.) to the third one, C, was determined
at room temperature. The measurement method has been described in an
earlier paper (V. A. Trapeznikov et al., Fizika metallov i metallovedeniye,
3, 314, (1956)). The following values were obtained:

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Study of the binding forces of ...

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S/048/61/025/008/007/009
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% Mo	F_E/F_C	γ_{Mo}	F_E/F_C
0	1.36 ± 0.03	4	1.63 ± 0.06
0.5	1.39 ± 0.07	8	1.60 ± 0.04
1	1.41 ± 0.03	16	1.63 ± 0.08
2	1.56 ± 0.03		

These data show that the curve $F_E/F_C = f(C)$ increases up to 4 wt% and then attains a saturation value. In previous papers (Fizika metallov i metallovedeniye, 5, 8 (1957); Izv. AN SSSR, Ser. fiz., 23, no. 5, 582 (1959)) the author showed that with increasing molybdenum content the amplitudes of thermal oscillations decrease, i.e. the binding forces increase. This increase is observed until 4wt% are attained, a further increase could not be found. Similar phenomena were observed by T. A. Badayeva (Dokl. AN SSSR, 64, 533 (1949) in several solid solutions. Most recent data on the strength properties and, especially, on the resistance to heat showed a monotonic increase of these characteristics in solid solutions up to the solubility limit. The deviation of the analogous course of the curve illustrating the increase of the binding forces and

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Study of the binding forces of ...

the curve illustrating the resistance to heat which begins at 4 wt% permits the conclusion that the increase of material strength by alloying depends on two factors: binding forces and structural factors. These results were also confirmed by X-ray spectrum analyses. In solid iron-molybdenum solutions this saturation could be observed at 2 wt% with the solubility limit lying at 6 wt%. On the other hand, it was found that the strength properties increase until the solubility limit is attained. Hence, the author concludes that when improving the strength properties the effect of the binding forces is limited by structural factors. The following is suggested for the production of heat resistant material: 1) proper choice of the base with high binding forces and proper usage of the structural factors. 2) The necessary structural factors should be obtained by alloying and heat treatment. Finally, the author discusses the effect of concentration fluctuations on the attenuation of the fluctuations which, as is demonstrated, has to be taken into account in similar studies. A. I. Kostarev, V. V. Shmidt and A. V. Kozlenkov are mentioned. There are 1 figure, 1 table, and 14 Soviet-bloc references.

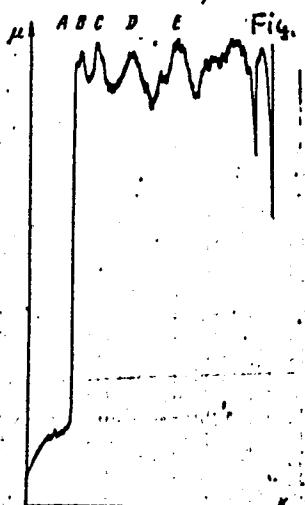
Card 3/4

Study of the binding forces of ...

26333
S/048/61/025/008/007/009
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ASSOCIATION: Institut fiziki metallov Akademii nauk SSSR (Institute of Metal Physics of the Academy of Sciences USSR)

Fig. K absorption edge of nickel.



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TRAPEZNIKOV, V.A.

Work of the Institute of Automatic and Remote Control in the
field of technical cybernetics during 1939-1964. Avtom. i
telem. 25 no. 6:747-752 Je '64. (MIRA 17:7)

SEMENKHOV, M.A.; TRAPENNIKOV, Yu.A.

Southwestern boundary of the Siberian Platform in the Vendian
and Early Cambrian. Geotektonika no. 1336-53 Jl-4g '65.

S. Geologicheskiy institut AN SSSR.

(MIRA 18:8)

KROPOTKIN, P.N.; TRAPEZNIKOV, Yu.A.

Variations in the angular rate of the earth's rotation, polar wandering, and the drift velocity of the geomagnetic field and their possible relation to geotectonic processes. Izv. AN SSSR. Ser. geol. 28 no.11:32-50 N'63. (MIRA 17:2)

1. Geologicheskiy institut AN SSSR, Moskva.

TRAPEZNIKOV, Yu.A.

Reports and reviews of the modern hypotheses of the expanding earth. Biul. MOIP. Otd. geol. 38 no.5:65-74 S-0 '63.
(MIRA 17:1)

AL'TSHUL'YR, V.M.; TRAPEZNIKOV, Yu.A.

Tables for calculating the elements of maximum tidal current.
Trudy GOIN no.87:115-165 '65. (MIR 19:1)

TRAPEZNIKOV, Z. A., ANTONOV-ROMANOVSKIY, V. V., DUBININ, V. G., and PROKHOROV, A. M.

Detection of Ionization of Eu⁺⁺ in the Phosphor SrS-Eu, Sm
by the Paramagnetic Resonance Absorption Method

V. V. Antonov-Romanovsky, V. G. Dubinin, A. M. Prokhorov, Z. A. Trapeznikova, and
M. V. Fock, P. N. Lebedev Physical Institute, Academy of Sciences of the U.S.S.R.,
Moscow, U.S.S.R.

When the phosphor SrS-Eu, Sm is under excitation, the paramagnetic absorption caused by Eu⁺⁺ ions decreases appreciably (approximately to 15%). Decrease of the amount of Eu⁺ during excitation may depend either on electron trapping by Eu⁺⁺ ion or on its further ionization, i.e., on its transition to a trivalent state. The second alternative seems to be the most probable.

Report presented at the 117th Meeting of the Electrochemical Society, Chicago,
1-5 May 1960.

TOROPOVA, R.I., vrach; TRAPEZNIKOVA, G.S., sestra-narkotizator (L'vov).

Training and work of nurse-anesthetists. Fel'd. i akust.
27 no.12:45-47 D'62. (MIRA 16:7)
(NURSES AND NURSING—STUDY AND TEACHING)
(ANESTHETISTS)

TRAPEZNKOVA, M.F.

TRAPEZNKOVA, M.F.

Precocious puberty and its relation to tumors of the gonads;
testicular androblastoma. Probl.endok. i gorm. 3 no.5:124-128
S-0 '57. (MKRA 11:1)

1. Iz Moskovskogo oblastnogo nauchno-issledovatel'skogo klinicheskogo instituta imeni Vladimirovskogo (dir. - dotsent P.M. Leonenko), urologicheskoy kliniki Moskovskogo oblastnogo nauchno-issledovatel'skogo klinicheskogo instituta imeni Vladimirovskogo (dir. - prof. A.Ya. Abramyan) i patomorfologicheskogo otdela Moskovskogo oblastnogo nauchno-issledovatel'skogo klinicheskogo instituta imeni Vladimirovskogo (zav. - prof. S.B. Vaynberg)

(TESTES, neoplasms,
androblastoma causing precocious puberty (Rus))
(PUBERTY, PRECOCIOUS, etiology and pathogenesis,
testicular androblastoma (Rus))

TRAPEZNIKOVA, M.F.

Case of spontaneous passage of a large calculus of the urethra.
Urologiia 22 no.4:67-68 Jl-Ag '57. (MIRA 10:10)

1. Iz urologicheskoy kliniki (zav. - prof. A.Ya.Abramyan) Moskovskogo
oblastnogo nauchno-issledovatel'skogo klinicheskogo instituta.
(URETHRA, calculi,
spontaneous passage (Rus))

TRAPEZNIKOVA, M.F., Cand Med Sci -- (diss) "Tumors of
the testicle." Gor'kiy 1958, 12 pp. (Gor'kiy State
Med Inst im S.M. Kirov) 200 copies (KL, 39-58, 112)

- 74 -

TRAPEZNIKOVA, M.F.

Tumors of the testes; analysis of clinical observations from the
Urological Clinic of the Moscow Province Clinical Research Institute.
Urologiia, 23 no.1:27-32 Ja-F '58. (MIRA 11:3)

(TESTES, neoplasms
analysis & statist.)

TRAVNIKOVA, N.F.; ODINOKOVA, V.A.

Kaposi's sarcoma of the ureter. Urologia no.1(1979).

1. Urologicheskaya klinika (zav. - prof. A.Ye. Gorobets), i patologanatomicheskiy otdel (zav. - chlen-korrespondent AMN SSSR prof. R.P. Avtay) Moskovskogo oblastnogo nauchno-issledovatel'skogo klinicheskogo instituta imeni Vladimirov.

TRAPEZNIKOVA, M.E., kand.med.nauk

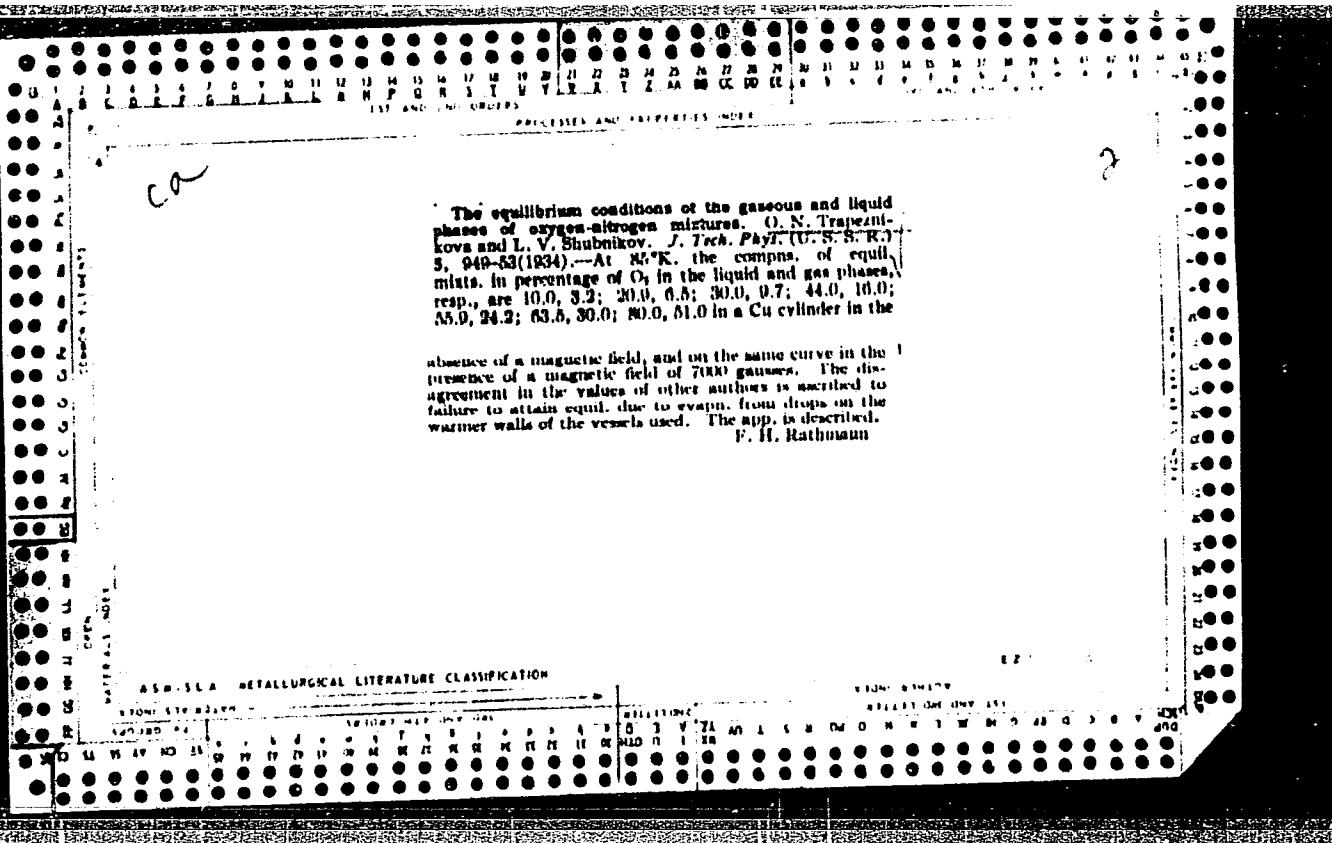
Kidney tumors in children. Urologiia 28 no.2:3-6 Mr-Ap'63.
(MIRA 16:6)

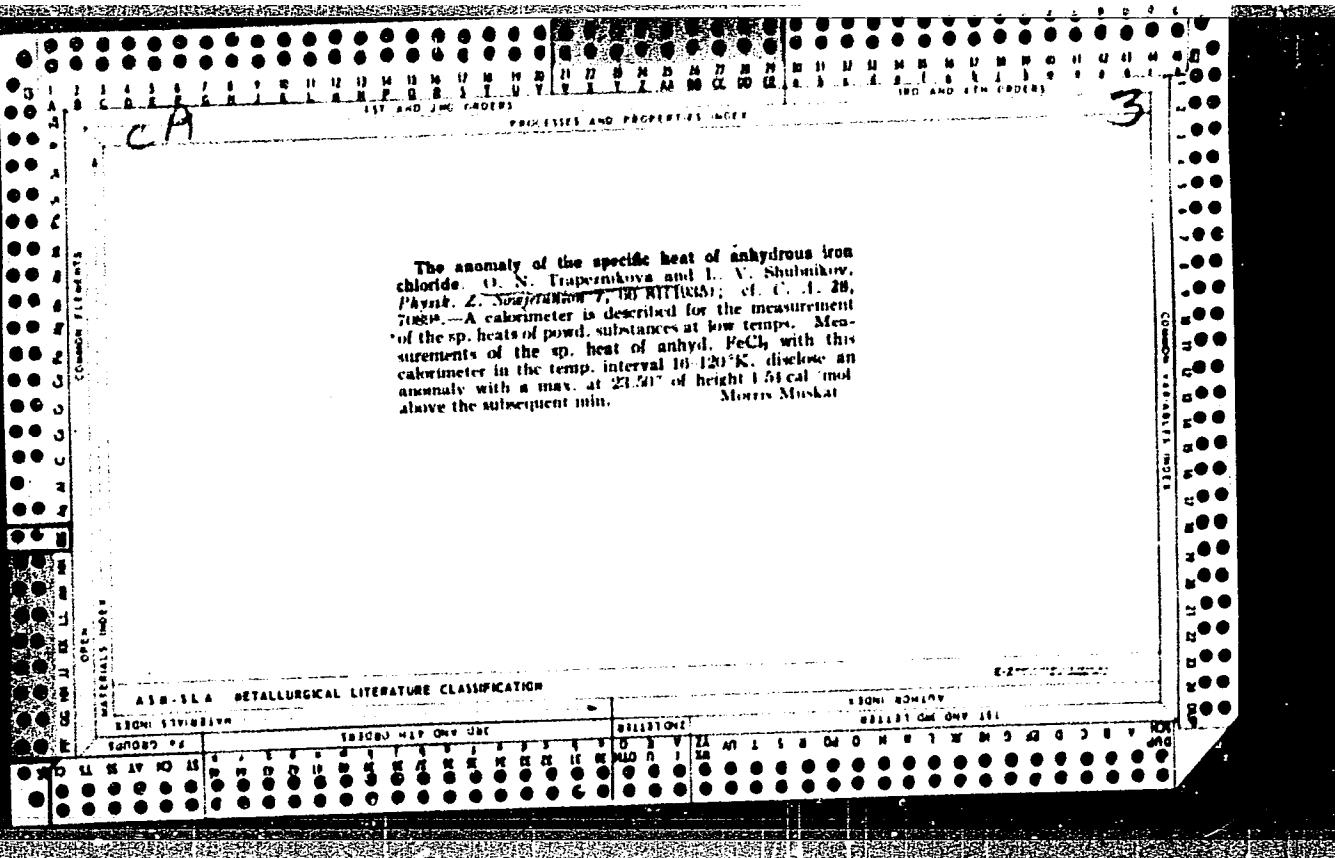
1. Iz urologicheskoy kliniki (zav. - zaslyzhennyy deyatel' nauki Armyanskoy SSR prof. A.Ya.Abramyan) Moskovskogo oblastnogo nauchno-issledovatel'skogo klinicheskogo instituta imeni N.F.Vladimirovskogo.

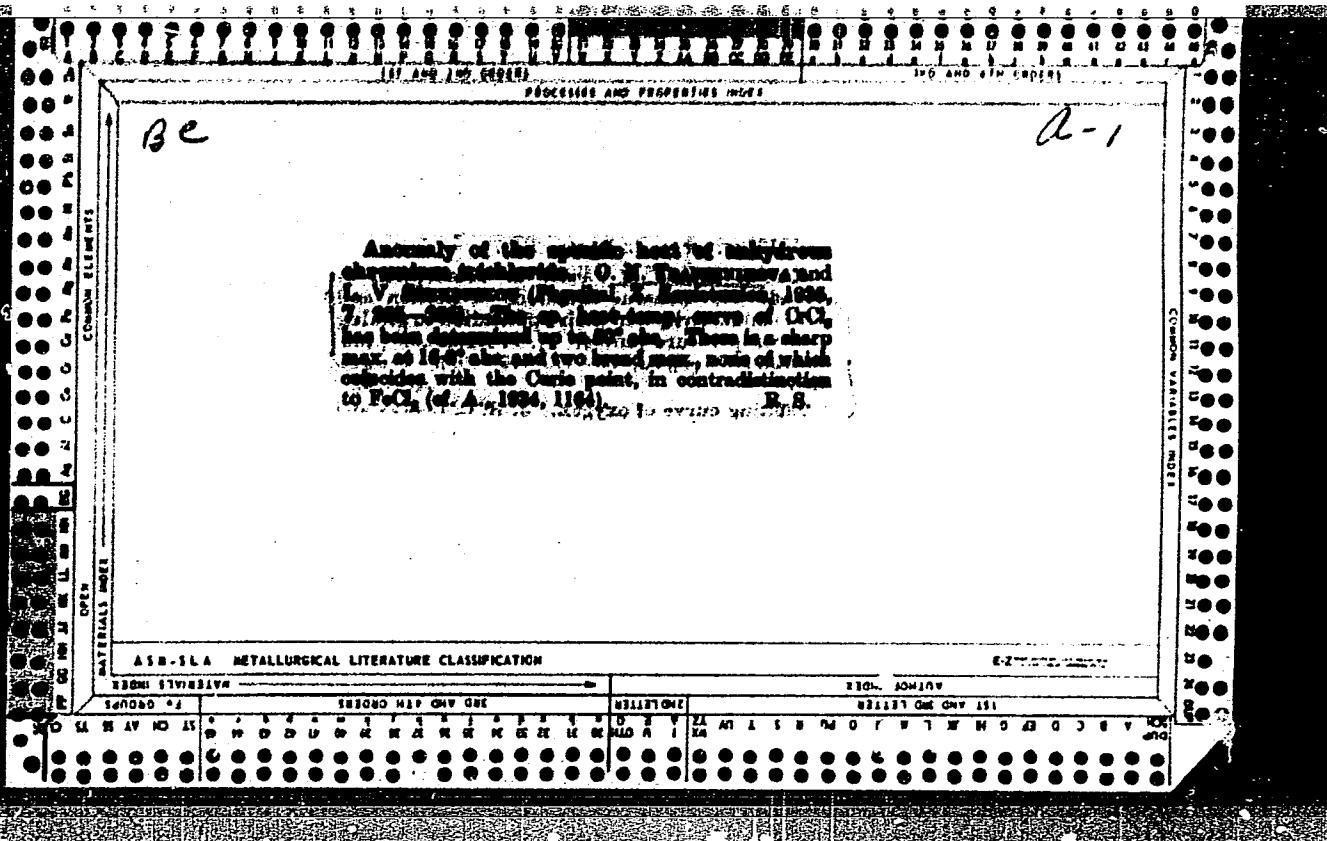
(KIDNEYS--CANCER) (CHILDREN--DISEASES)

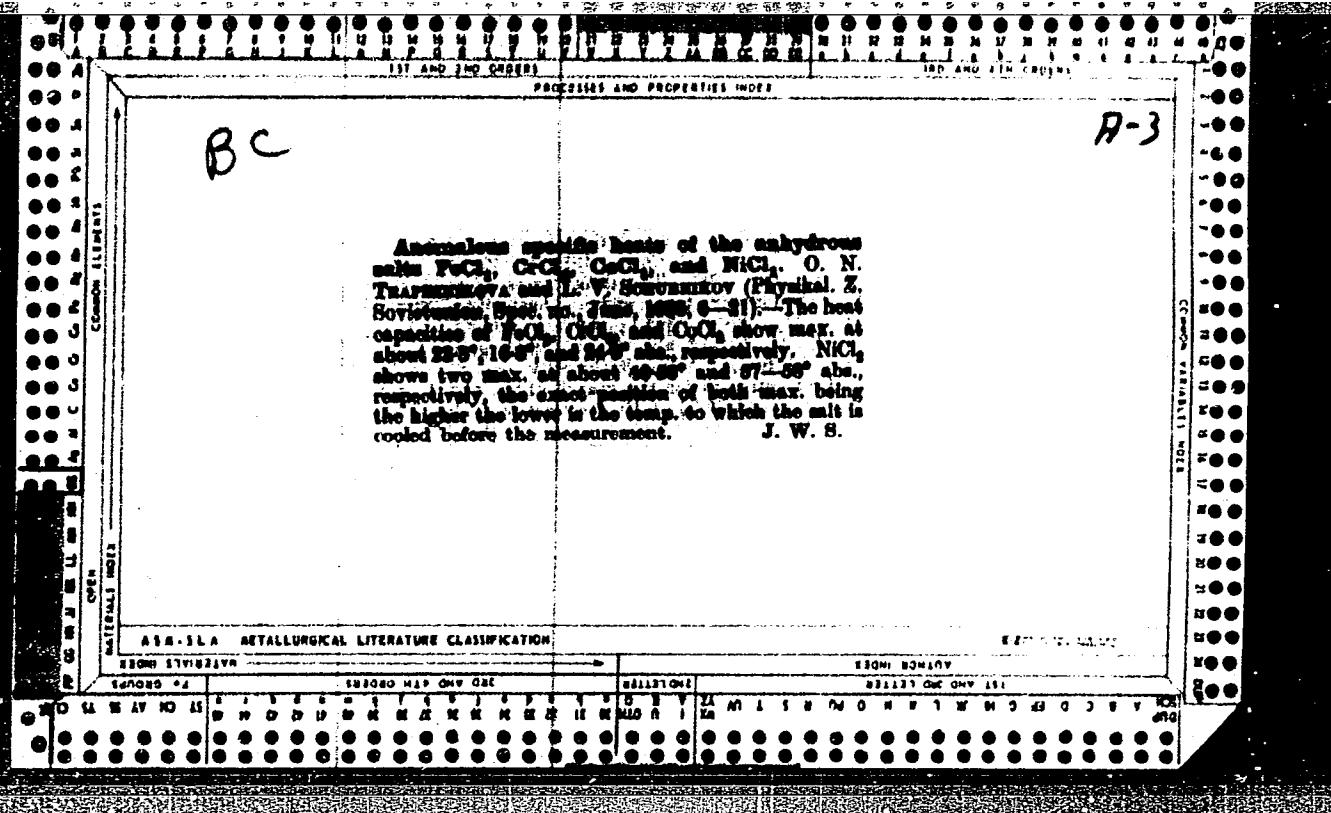
TRAPEZNIKOVA, Margarita Fedorovna; LEVANT, D.Ye., red.; CHULKOV,
I.F., tekhn. red.

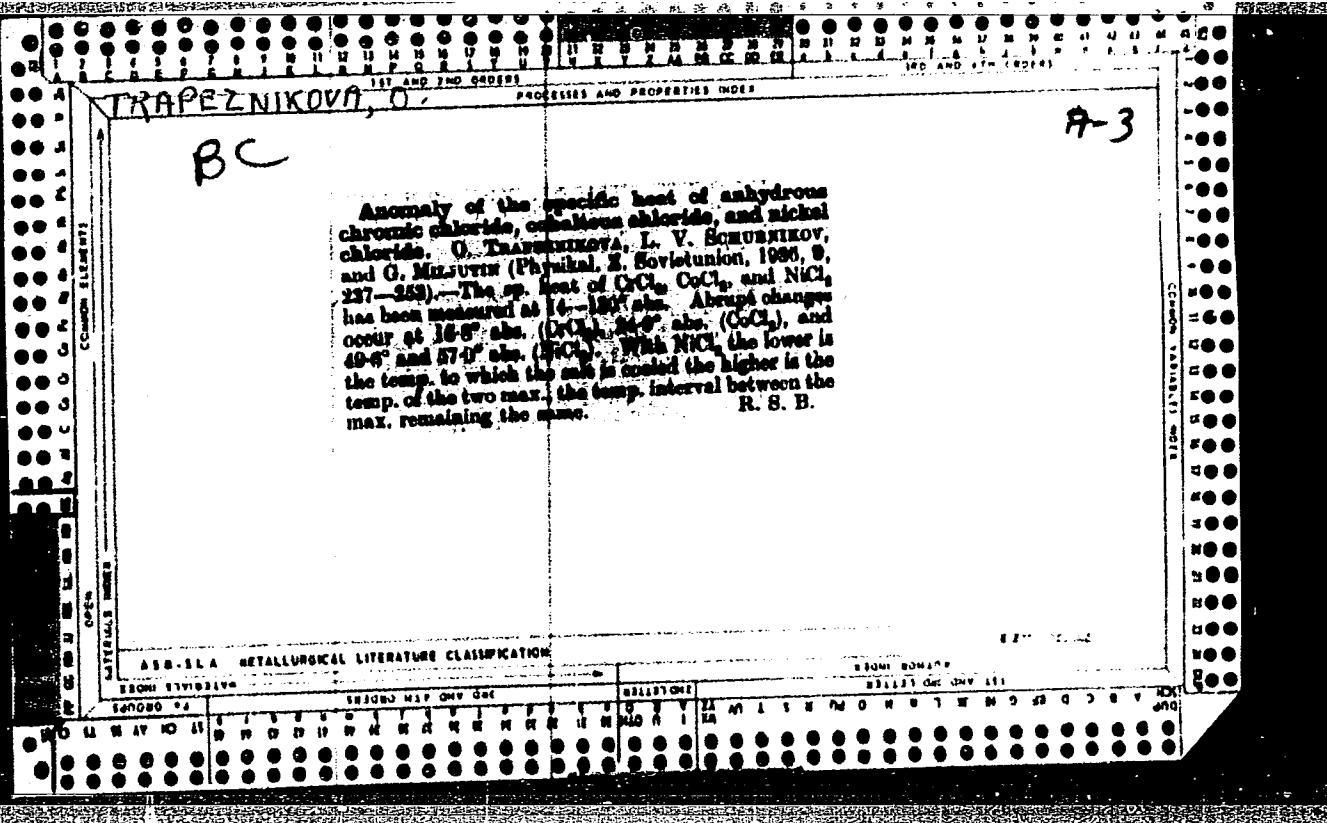
[Tumors of the testicle] Opukholi iaichka. Moskva,
Medgiz, 1963. 131 p. (MIRA 16:7)
(TESTICLE—CANCER)

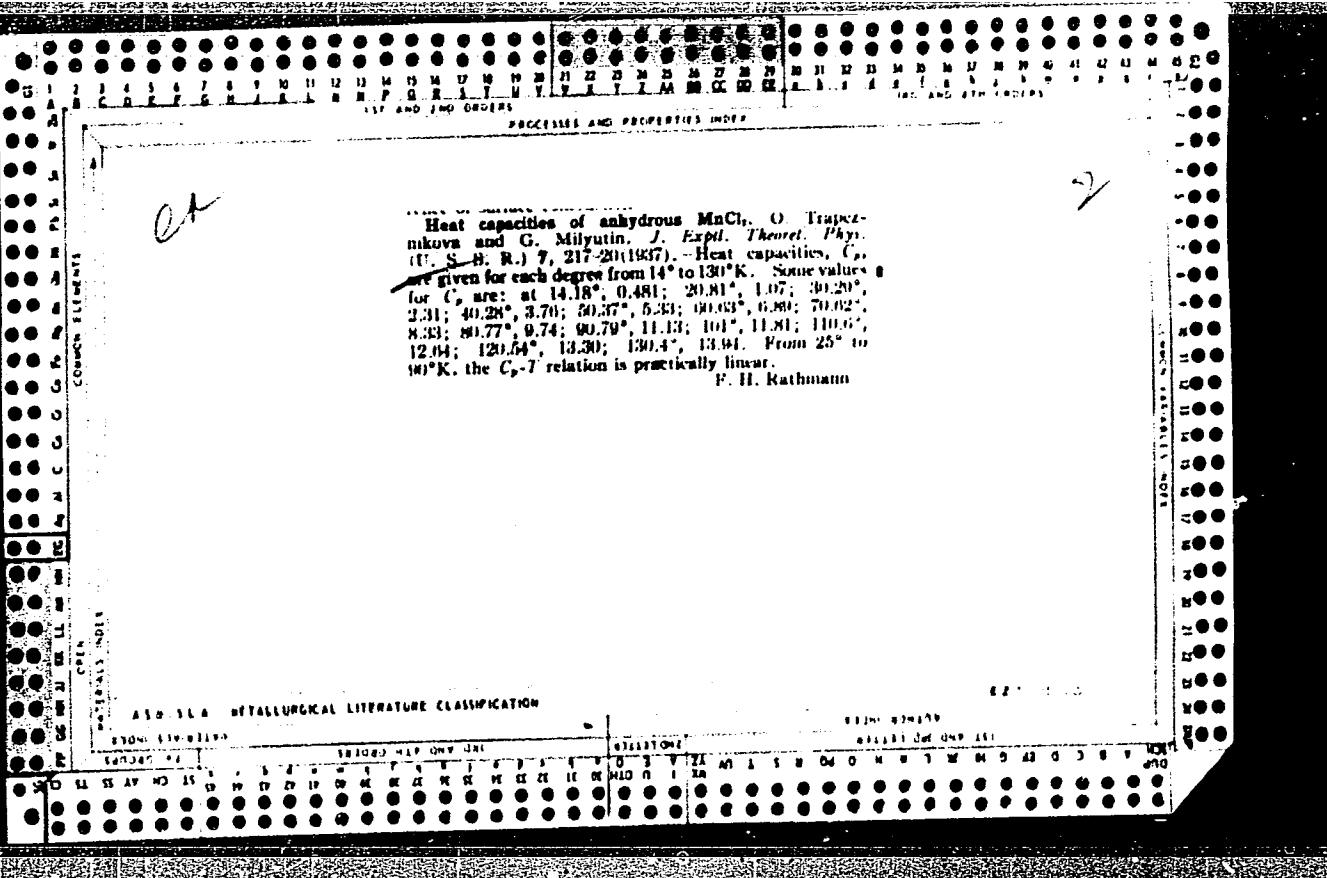












SC
Specific heat of dry manganese chloride.
O. TRAPEZNIKOVA and G. MILUTIN (Physikal. Z.
Sovietunion, 1937, 11, 55-60; cf. this vol., 124).—
Tabulated vals. of C, kg.-cal. per mol. of MnCl₂
between 14° and 130° abs. change from 13.50 to
13.94, respectively. No anomalies are observed in
this region. O. D. S.

